



DEPARTMENT OF ENERGY

Assessment of Department of Energy's Interpretation of the Definition of High-Level Radioactive Waste

AGENCY: Office of Environmental Management, Department of Energy.

ACTION: Notice.

SUMMARY: The U.S. Department of Energy (DOE) affirms its interpretation of the statutory term “high-level radioactive waste” (HLW) as defined in the Atomic Energy Act of 1954, as amended (AEA), and the Nuclear Waste Policy Act of 1982, as amended (NWPAA). The HLW interpretation (HLWI) is consistent with the law, the best available science and data, and the recommendations of the Blue Ribbon Commission on America’s Nuclear Future. In developing the HLWI, the views of members of the public and the scientific community were considered.

ADDRESSES: This Federal Register Notice (FRN) and other documents relevant to DOE’s HLWI are available on the Department’s website at:

<https://www.energy.gov/em/program-scope/high-level-radioactive-waste-hlw-interpretation>.

FOR FURTHER INFORMATION CONTACT: James Joyce at james.joyce@em.doe.gov or (202) 586–5000.

SUPPLEMENTARY INFORMATION: The Secretary of Energy is committed to implementing the Department’s environmental cleanup programs in a manner that is consistent with the law and that makes evidence-based decisions guided by the best available science and data. In early 2021, various stakeholders submitted both supportive and non-supportive letters to

the Secretary of Energy regarding the HLWI. The Department assessed the HLWI in light of this commitment. This FRN documents the results of that assessment.

As explained in this FRN, DOE affirms its interpretation of the statutory term “high-level radioactive waste” (HLW) as defined in the AEA¹ and NWPA.² As DOE stated in the *Supplemental Notice Concerning U.S. Department of Energy Interpretation of High-Level Radioactive Waste*, 84 FR 26835 (June 10, 2019, FRN) (Supplemental Notice), and the *High-Level Radioactive Waste Interpretation Limited Change to DOE Manual 435.1–1, Radioactive Waste Management Manual and Administrative Change to DOE Order 435.1, Radioactive Waste Management*, 86 FR 5173 (January 19, 2021, FRN), DOE interprets the statutory term “high-level radioactive waste” to mean that not all wastes from the reprocessing of spent nuclear fuel (reprocessing wastes) are HLW. DOE interprets the statutory term such that some reprocessing wastes may be classified as not HLW (non-HLW) and may be safely disposed of in accordance with its radiological characteristics. DOE confirms that the HLWI is consistent with the law, the best available science and data, and the recommendations of the Blue Ribbon Commission on America’s Nuclear Future. DOE further affirms that the views of the public and the scientific community were considered in developing the HLWI.

I. Background

Building on the recommendations of the Blue Ribbon Commission on America’s Nuclear Future issued in 2012,³ the development of the HLWI began in 2016 at the direction of then Secretary Moniz. The HLWI was finalized in 2019, and was successfully implemented on a single waste stream in 2020.

The Department sought public comments on its HLWI through its *Request for Public Comment on the U.S. Department of Energy Interpretation of High-Level Radioactive Waste*, 83

¹ 42 U.S.C. 2011 *et seq.*

² 42 U.S.C. 10101 *et seq.*

³ This commission was formed in 2010 by then-Secretary of Energy Chu at the request of President Obama to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommend a new strategy. <https://www.energy.gov/ne/downloads/blue-ribbon-commission-americas-nuclear-future-report-secretary-energy>.

FR 50909 (October 10, 2018, FRN). The 90-day public comment period, including a 30-day extension to submit comments, invited public input in order to better understand stakeholder perspectives, and sought to increase transparency and enhance public understanding of DOE's views of its legal authority. DOE received a total of 5,555 comments, roughly 360 of which were distinct comments, from a variety of stakeholders: members of the public; tribal nations; members of Congress; numerous state and local governments; and one federal agency, the Nuclear Regulatory Commission (NRC). All input was important to the process and all comments were carefully and fully considered by DOE.

In June 2019, after careful consideration of all comments received on the October 2018 FRN, DOE issued the Supplemental Notice. The Supplemental Notice provided additional explanation of DOE's interpretation as informed by public review and comment and further consideration by DOE following the October 2018 FRN. The Supplemental Notice also provided responses to significant and recurring comments received through the public comment process. In its Supplemental Notice, DOE explained its interpretation of the term HLW, as defined in the AEA and NWPA.⁴ DOE has the long-standing authority and responsibility under the AEA to ensure that all DOE radioactive waste—including reprocessing waste—is managed and disposed of in a safe manner. The AEA and NWPA define HLW as:

- (A) The highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and
- (B) Other highly radioactive material that the [NRC], consistent with existing law, determines by rule requires permanent isolation.

42 U.S.C. 10101(12); see 42 U.S.C. 2014(dd). In Paragraph A of 42 U.S.C. 10101(12), Congress limited the designation of HLW to those materials that are “highly radioactive.” This

⁴ The AEA and NWPA include the same definition of HLW.

limiting term applies to all reprocessing waste, including the “liquid waste produced directly in reprocessing” and “any solid material derived from such liquid waste.” The use of the limiting term, “highly radioactive,” demonstrates that Congress intended to distinguish between reprocessing waste that is “highly radioactive” and reprocessing waste that is not. If Congress had intended to define all reprocessing waste as HLW regardless of its radiological characteristics, it would not have included the “highly radioactive” requirement and instead defined HLW as “all waste material resulting from the reprocessing of spent nuclear fuel.”

Similarly, for “any solid material derived from” the “liquid waste produced directly in reprocessing,” Congress also specified that in addition to being “highly radioactive” it must also contain fission products in “sufficient concentrations.” The terms “highly radioactive” and “sufficient concentrations” are not defined in the AEA or the NWPAA. By providing in Paragraph A that liquid reprocessing waste is HLW only if it is “highly radioactive,” and that solid material derived from liquid reprocessing waste is HLW only if it is “highly radioactive” and contains fission products in “sufficient concentrations” without further defining these standards, Congress left it to DOE to determine when the standards are met for reprocessing wastes.

DOE has evaluated the meaning of these terms based on its historical knowledge, experience, and expertise in managing reprocessing wastes. DOE's interpretation is an articulation of the technical criteria that can be applied to individual waste streams on a case-by-case basis to determine whether the standard for HLW has been met. DOE also notes that in the NRC's comments on the interpretation, the NRC staff stated that they “agree with the concept proposed in *Federal Register* October 10 Notice (83 FR 50909) that radioactive waste may be classified and disposed of in accordance with its radiological characteristics.” DOE places significant weight on the NRC's views of matters relating to the safe management and disposal of radioactive waste, including the HLWI.

As explained in the Supplemental Notice, DOE has both the scientific and technical expertise as well as the legal authority to interpret the term HLW in the AEA and NWPAA to

determine that certain of its reprocessing wastes are not HLW based on their radiological characteristics. DOE interprets those statutes to provide that reprocessing wastes are properly classified as non-HLW where the radiological characteristics of the waste, in combination with appropriate disposal facility requirements for safe disposal, demonstrate that disposal of such waste is fully protective of human health and the environment. Specifically, as stated in the Supplemental Notice, DOE interprets the statutes to provide that a reprocessing waste may be determined to be non-HLW if the waste meets either of the following two criteria:

- (I) Does not exceed concentration limits for Class C low-level radioactive waste as set out in section 61.55 of title 10, Code of Federal Regulations, and meets the performance objectives of a disposal facility; or
- (II) Does not require disposal in a deep geologic repository and meets the performance objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable requirements.

Reprocessing waste meeting either I or II of the criteria is non-HLW, and—pursuant to appropriate processes—may be classified and disposed of in accordance with its radiological characteristics in an appropriate disposal facility provided all applicable requirements of the disposal facility are met.

On June 10, 2019 (84 FR 26847), in determining whether and how to implement the HLWI specific to a particular waste stream, DOE initiated a public process pursuant to the National Environmental Policy Act (NEPA) to analyze the potential environmental impacts associated with disposing of up to 10,000 gallons of stabilized (grouted) Defense Waste Processing Facility (DWPF) recycle wastewater from the Savannah River Site (SRS) at a commercial low-level radioactive waste (LLW) disposal facility located outside of South Carolina licensed by either the NRC or an Agreement State. In August 2020, DOE completed an environmental assessment (EA) (DOE/EA-2115) and published a Finding of No Significant Impact (85 FR 48236). DOE applied the HLWI to a specific waste stream, shipping eight

gallons of the SRS DWPF recycle wastewater to the Waste Control Specialists LLC Federal Waste Facility, a licensed commercial LLW facility located near Andrews, Texas, for stabilization and disposal as non-HLW.⁵

DOE's January 19, 2021, FRN (86 FR 5173) announced a limited change to DOE Manual 435.1-1, *Radioactive Waste Management Manual*, to formally incorporate the Department's interpretation of the statutory definition of HLW. Additionally, DOE made an administrative change to DOE Order 435.1, *Radioactive Waste Management*. The revised Manual includes DOE's interpretation of the statutory term HLW as defined in the AEA and NWSA.

Pursuant to the HLWI, on January 19, 2021, DOE issued the Notice, *Draft Environmental Assessment for the Commercial Disposal of Savannah River Site Contaminated Process Equipment* (86 FR 5175), announcing its intent to prepare a draft EA (DOE/EA-2154) pursuant to NEPA to dispose of contaminated process equipment from SRS at a commercial LLW disposal facility located outside of South Carolina licensed by either the NRC or an Agreement State. As explained in a separate Notice of Availability, *Draft Environmental Assessment for the Commercial Disposal of Savannah River Site Contaminated Process Equipment*, which is being published in the *Federal Register* concurrently with this FRN, the draft EA analyzes capabilities for alternative disposal options through the use of existing, licensed, off-site commercial disposal facilities. The SRS contaminated process equipment would be characterized, stabilized as appropriate, and packaged, and if the waste acceptance criteria and performance objectives of a specific disposal facility are met, DOE could consider whether to dispose of the waste as LLW under the Department's interpretation of HLW.

The process for public comment on the draft EA for the Commercial Disposal of Savannah River Site Contaminated Process Equipment is explained in the separate Notice of Availability. DOE is committed to robust, informed, stakeholder participation and highly

⁵ <https://www.energy.gov/nepa/doea-2115-commercial-disposal-defense-waste-processing-facility-recycle-wastewater-savannah>

encourages all interested individuals and organizations to further provide input to DOE on its implementation at SRS for this second waste stream under the HLWI, using that NEPA process. DOE will continue to solicit comments, as appropriate, on individual actions related to implementing the HLWI, for example, through the NEPA process.

At this time, DOE is not proposing to implement the HLWI at any other site or for any other waste stream. DOE will continue to evaluate its waste inventories and related management and disposal options, and expects to engage openly with stakeholders regarding potential future opportunities to implement the HLWI more broadly. Any decisions, however, about whether and how the interpretation will apply to other wastes at any specific site and whether such waste may be managed as non-HLW will be the subject of subsequent actions.

II. Assessment

After extensive policy and legal assessment, DOE affirms the HLWI is consistent with the law, guided by the best available science and data, and that the views of members of the public and the scientific community have been considered in its adoption. The HLWI is a science-based tool to help further the tank waste cleanup mission across the country.

In its assessment, documented below, the Department evaluated whether: (1) the HLWI is based on the best available science and data; (2) the HLWI is consistent with law; (3) the views of members of the public and the scientific community have been considered in adopting the HLWI; (4) the Department has a rigorous decision-making process in place to ensure future application of the HLWI to individual waste streams will consider—through NEPA or analogous processes (e.g., Comprehensive Environmental Response, Compensation and Liability Act (CERCLA))—environmental justice, protection of the environment and public health, impact on access to clean air and water, limit on exposure to hazardous chemicals and radioactive materials, and impact on greenhouse gas emissions and climate change, which are highlighted by Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to*

Tackle the Climate Crisis,⁶ and (5) the Department has processes in place to gather input from the public and stakeholders, including state, local, tribal, and territorial officials, scientists, labor unions, environmental advocates, and environmental justice organizations during future applications of HLWI to individual waste streams.

(1) The HLWI is based on the best available science and data.

Waste characteristics, and not the origin or source of a waste, determine the corresponding risks to workers, the public, and the environment. Current DOE management practices are generally based on waste characteristics (which determines risk) and not solely origin or source (which does not determine risk). The waste characteristics are based on rigorous sampling and analysis and documented in accordance with strict quality assurance standards.

DOE implements the HLWI through well-established statutes, regulations, requirements and policies included but not limited to:

- AEA and NWPA;
- Regulation and oversight of nuclear waste disposal facilities:
 - LLW: 10 Code of Federal Regulations (CFR) part 61, *Licensing Requirements for Land Disposal of Radioactive Waste*;
 - All commercial disposal facilities must be designed, constructed, operated and closed to meet relevant safety standards.
 - Commercial LLW disposal facilities are licensed by either NRC or Agreement States under 10 CFR part 61.
 - Transuranic waste generated from atomic energy defense activities:

⁶ Executive Order 13990 states it is the Administration’s policy “to listen to the science; to improve public health and protect our environment; to ensure access to clean air and water; to limit exposure to dangerous chemicals and pesticides; to hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; to reduce greenhouse gas emissions; to bolster resilience to the impact of climate change; to restore and expand our national treasures and monuments; and to prioritize both environmental justice and the creation of the well-paying union jobs necessary to deliver on these goals.”

- 40 CFR part 191, *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*;
- 40 CFR part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR part 191 Disposal Regulations*;
- CERCLA;
- Resource Conservation and Recovery Act (RCRA);
- NEPA; and
- DOE Order 144.1, *Department of Energy Tribal Government Interactions and Policy*.

Disposal of reprocessing waste based on radiological characteristics versus its source is a science-based approach as demonstrated by:

- Recommendations by the Blue Ribbon Commission on America's Nuclear Energy Future, tasked by then-Secretary of Energy Chu, at the request of President Obama (2012),⁷ which concluded that “[t]he most important overarching criticism of the U.S. waste classification system is that it is not sufficiently risk-based. Rather, it is (for the most part) directly or indirectly source-based—that is, based on the type of facility or process that produces the waste rather than on factors related to human health and safety risks.” The Blue Ribbon Commission also found that “the definition of HLW, in particular, has attracted the most criticism” for being insufficiently risk-based, noting that “to the extent that terms such as ‘highly radioactive,’ ‘sufficient concentrations,’ and ‘requires permanent isolation’ are used to define HLW, they have not been quantified.”
- Affirmation from six National Laboratories: “The national laboratories have reviewed the proposal and support the revised interpretation based on its technical attributes and

⁷ <https://www.energy.gov/sites/default/files/2019/06/f63/Independent-Reports-Supporting-a-Risk-Based-Approach-to-Radioactive-Waste-Management-June-2019.pdf>.

potential complex-wide benefits....We believe that classification of reprocessing waste for disposal based on radiological risk provides the best path to accelerating the safe long-term stabilization and disposition of a wide variety of waste streams and provides immediate benefit to the health and safety of the worker, communities, and environment across the complex.”⁸

- International guidelines for management and disposal of radioactive waste, i.e., International Atomic Energy Agency Safety Series, Classification of Radioactive Waste, Report No. 111-G-1.1, Vienna (1994).
- NRC’s public comments on the HLWI; NRC staff “agree with the concept proposed [in the October 2018 FRN] that radioactive waste may be classified and disposed of in accordance with its radiological characteristics.”
- Numerous other independent reports, e.g., Massachusetts Institute of Technology, *The Future of the Nuclear Fuel Cycle, An Interdisciplinary MIT Study* (2011), National Research Council, *Risk and Decisions About Disposition of Transuranic and High-Level Radioactive Waste* (2005), Government Accountability Office (GAO), GAO-17-317, *High Risk Series – Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others* (2017), Energy Communities Alliance, *Waste Disposition: A New Approach to DOE’s Waste Management Must Be Pursued* (2017).⁹

Lastly, the HLWI is consistent with how wastes from non-reprocessing sources (e.g., decontamination and decommissioning, environmental restoration) are classified. It does not change existing requirements for protectiveness of human health, the environment and workers (i.e., waste disposal must comply with performance objectives, waste acceptance criteria, license conditions/permits, and all other existing applicable requirements).

⁸ Letter from the Directors of the Savannah River National Laboratory, Idaho National Laboratory, Sandia National Laboratories, Pacific Northwest National Laboratory, Los Alamos National Laboratory, and Oak Ridge National Laboratory to the Secretary of Energy, dated March 25, 2019.

⁹ <https://www.energy.gov/sites/default/files/2019/06/f63/Independent-Reports-Supporting-a-Risk-Based-Approach-to-Radioactive-Waste-Management-June-2019.pdf>.

In summary, implementation of the HLWI is based on waste characterization and analysis performed in accordance with rigorous quality assurance requirements; is consistent with the existing framework of statutes, regulations, and policies, including NEPA, RCRA, and CERCLA; is consistent with the recommendations of, or has been affirmed by, highly technical and influential organizations such as the Blue Ribbon Commission on America's Nuclear Energy Future, six National Laboratories, the International Atomic Energy Agency, the NRC staff, and independent technical reports.

(2) The HLWI is consistent with law.

DOE affirms the detailed explanation of the Department's legal authority to issue and implement the HLWI set forth in the Supplemental Notice. Two general points from the Supplemental Notice warrant emphasis here.

First, DOE's interpretation is consistent with the plain language of the HLW definition in the AEA and NWSA. As discussed in the "Background" section of this FRN and further explained in the Supplemental Notice, the statutory text in Paragraph A of the HLW definition¹⁰ indicates that not all reprocessing waste is HLW. The adverb, "highly," modifies "radioactive," which indicates that the degree of radioactivity is relevant to the definition. If certain reprocessing waste is not "highly" radioactive, such waste would be excluded from the definition of HLW. Further, the use of "highly" suggests that there should be a threshold for the level of radioactivity because even "moderately" radioactive material would not qualify. The phrase "sufficient concentrations" likewise indicates that there must be a concentration level that would be "insufficient," and material with concentrations of fission products below that level would not be HLW. Neither the AEA nor the NWSA define the phrases "highly radioactive" or "sufficient concentrations." These phrases are inherently ambiguous and necessarily require an exercise of interpretative judgment by DOE—the agency charged with "provid[ing] for safe storage,

¹⁰ 42 U.S.C. 10101(12); *see also* 42 U.S.C. 2014(dd).

processing, transportation, and disposal of’’ reprocessing and other radioactive wastes resulting from the United States’ defense program. *See* 42 U.S.C. 2123(a)(3), 5814, 7151(a).

DOE’s view is that the appropriate dividing line between reprocessing waste that is “highly radioactive” and waste that is not, and between reprocessing waste that contains fission products in “sufficient concentrations” and waste that does not, is based on the risk the waste poses—specifically, whether or not the waste can be disposed of safely in an existing facility that is not a deep geologic repository. As reflected in the NWPA, deep geologic disposal is the internationally recognized and technically viable means to provide the long-term isolation necessary to safely dispose of waste that, according to the NRC, has historically been described as HLW—waste that contains both highly concentrated short-lived radionuclides and long-lived radionuclides. Because not all radioactive wastes include this combination of radionuclides, the NRC has established a regulatory framework in 10 CFR part 61 that differentiates wastes based on their radiological characteristics.¹¹ This framework allows lower-risk wastes to be disposed of in facilities that are not deep geologic repositories, so long as stringent technical requirements to protect public health and the environment are met.

Second, DOE’s interpretation is a reasonable and appropriate exercise of the Department’s authority to protect human health and the environment.¹² The interpretation is informed by DOE’s significant historical knowledge, experience, and technical expertise in safely managing reprocessing and other radioactive wastes resulting from the United States’ defense program and government-sponsored nuclear energy research. Among other things, the interpretation incorporates the well-established principles and standards of the NRC’s regulatory

¹¹ In its regulations, the NRC has identified classes of LLW—Class A, B, or C—for which near-surface disposal is safe for public health and the environment. Waste that exceeds the Class C tables in 10 CFR 61.55 also may be safely disposed in a near-surface disposal facility under certain conditions. This waste classification regime is based on the concentration levels of a combination of specified short-lived and long-lived radionuclides in a waste stream, with Class C LLW having the highest concentration levels. In accordance with NRC regulations, 10 CFR 61.55(a)(2)(iv) and 10 CFR 61.58, waste that exceeds the Class C levels is evaluated on a case-specific basis to determine whether it requires disposal in a deep geologic repository, or whether an alternative disposal facility can be demonstrated to provide safe disposal.

¹² *See, e.g.*, AEA § 91(a)(3), 42 U.S.C. 2121(a)(3); AEA § 161(b), 42 U.S.C. 2201(b).

framework for the disposal of LLW, and—as discussed previously—it is consistent with the recommendations of, or has been affirmed by, highly technical and influential organizations such as the Blue Ribbon Commission on America’s Nuclear Energy Future, six National Laboratories, the International Atomic Energy Agency, the NRC staff, and independent technical reports.

(3) The views of members of the public and the scientific community have been considered in adopting the HLWI.

During the development of the HLWI, DOE provided opportunities to interested parties and stakeholders for meaningful input/comment. DOE issued its HLWI in the *Federal Register* in October 2018 for a 60-day period and extended it for an additional 30 days. Approximately 5,555 comments were received from citizens, federal and state regulatory agencies, lawmakers, tribal nations, scientific and environmental organizations, and state and local governments. Each of these comments was carefully considered by DOE in development of the HLWI criteria and DOE published the responses to comments by major topic in the Supplemental Notice. For example, in response to NRC’s comment, DOE modified the interpretation’s first criterion by adding the requirement that waste at or below Class C LLW limits must also meet the performance objectives of a disposal facility. In response to comments by other stakeholders concerning the propriety of DOE determining for itself what is HLW and non-HLW, DOE explained that Congress had assigned DOE this role through the AEA, and that DOE is accountable to a number of external regulatory, oversight, and technical standards entities including the NRC, Defense Nuclear Facilities Safety Board, U.S. Environmental Protection Agency, state agencies, as well as the National Council on Radiation Protection and Measurements and International Commission on Radiological Protection.

Throughout this process, as requested, DOE officials met with state and federal officials, tribal nation representatives, industry, and other stakeholders, as well as provided briefings at multiple stakeholder forums.

(4) The Department has a rigorous decision-making process in place to ensure future application of the HLWI to individual waste streams will consider—through NEPA or analogous processes (e.g., CERCLA)—environmental justice, protection of the environment and public health, impact on access to clean air and water, limit on exposure to hazardous chemicals and radioactive materials, and impact on greenhouse gas emissions and climate change, which are highlighted by Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*.

The integrity of the federal decision-making is ensured by DOE's compliance with the existing framework of statutes, regulations, and policies, including, but not limited to, NEPA, RCRA, and CERCLA; DOE's transparent processes (e.g., public input through NEPA and technical documents); and independent oversight by NRC and/or Agreement States through every phase of radioactive waste management and disposal at commercial facilities. The HLWI complies with Administration policies, as outlined in Executive Order 13990.

- **Environmental justice:** Application of the HLWI could remove reprocessing waste from the states and proximities to tribal nations and other Native American communities where it has been stored for decades and provide for the disposal of these wastes in facilities constructed and regulated for such purposes. Environmental justice issues are evaluated as part of DOE's NEPA process. In accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, DOE is required to identify and address the disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations, to the greatest extent practicable and permitted by law.
- **Protection of the environment and public health:** Application of the HLWI could reduce the length of time that radioactive waste is stored on-site at DOE facilities, increasing safety for workers, the public, and the environment. For off-site commercial disposal of reprocessing waste determined to be non-HLW, federal requirements (10 CFR part 61) to

protect human health and the environment are embedded in the NRC and Agreement State's design, permitting and operations license conditions. DOE must comply with the existing NRC and Agreement State regulatory framework and federal laws (e.g., CERCLA) before any waste can be disposed including evaluating waste acceptance criteria and impacts on performance objectives of disposal facilities, preparing or revising permits and obtaining regulatory approvals, and coordinating with stakeholders. For commercial facilities, the NRC or the Agreement State provides oversight through every phase of LLW management and disposal. In no case would the HLWI abrogate DOE's responsibilities under laws, regulations, agreements, or permit requirements. Nor does it change DOE's existing statutory authorities or those of its regulators at the federal, state, or local level.

- Impact on access to clean air and water: Application of the HLWI to a specific waste stream would comply with the Clean Air Act, Clean Water Act, and other federal regulations for protection of clean air and water. Potential impacts to air and water are evaluated under NEPA. Primary sources of air pollutants, including hazardous air pollutants, are identified and assessed during the NEPA evaluation for each of the alternatives. Impacts on groundwater quality, potential impacts to stormwater runoff, stream quality, wetlands quality, etc. are identified and assessed during the NEPA evaluation for each of the alternatives.
- Limit on exposure to hazardous chemicals and radioactive materials:¹³ Application of the HLWI to a specific waste stream would comply with the AEA, NWPA, CERCLA, RCRA, and other federal regulations for protection of human health and environment. Potential impacts due to exposures to hazardous chemicals and radioactive materials as a result of reprocessing waste being determined to be non-HLW are evaluated as part of the

¹³ Executive Order 13990 uses the terms "dangerous chemicals and pesticides." DOE's assessments focus on hazardous materials, hazardous substances, hazardous wastes, and radiological materials, depending on the context.

NEPA process. The NEPA evaluation identifies any special precautions needed to transport hazardous materials, if required, as part of the proposed action or alternatives and identifies any on-site treatment, engineering, or administrative controls that may be applied to the hazardous and radioactive waste encountered.

- Potential impacts on greenhouse gas emissions and climate change: Potential greenhouse gas emissions and potential impacts to climate change would be evaluated consistent with Council on Environmental Quality (CEQ) and DOE NEPA regulations.

(5) The Department has processes in place to gather input from the public and stakeholders, including state, local, tribal, and territorial officials, scientists, labor unions, environmental advocates, and environmental justice organizations during future applications of HLWI to individual waste streams.

The Department has robust, formal public review and comment processes – such as those under NEPA, RCRA, and CERCLA – that provide additional opportunities for public participation on potential future applications of the HLWI. Informed stakeholder participation, including members of the environmental justice community, in DOE clean-up decisions is required by these statutes and environmental regulations and policies. Additionally, DOE Order 144.1, *Department of Energy Tribal Government Interactions and Policy*, requires government-to-government consultations with affected tribal nations to ensure that tribal rights, including concerns regarding cultural resources management, are considered in clean-up decisions.

- Public participation requirements for DOE NEPA activities are specified in 40 CFR 1500-1508 and 10 CFR part 1021. All Federal agencies are required to provide meaningful opportunities for public participation.
- RCRA implementing regulations (e.g., 40 CFR parts 124 and 270), as administered by the U.S. Environmental Protection Agency and state regulatory agencies, requires public participation during the hazardous waste permitting process (e.g., permit to remove and treat tank mixed waste) and during the site corrective action program (e.g., tank closures)

and DOE follows these requirements. The RCRA Public Participation Manual describes the many public participation activities required by federal RCRA permitting regulations.

- CERCLA, as implemented by the National Contingency Plan, requires specific community involvement activities be undertaken at certain points throughout the Superfund process (40 CFR 300.430(c)(2)(ii)), and DOE follows these requirements. The CERCLA program requires public participation, and the Superfund Community Involvement Handbook describes community involvement activities during Superfund response actions (see, e.g., Chapter 4).
- DOE Order 144.1, *Department of Energy Tribal Government Interactions and Policy*, communicates departmental, programmatic, and field responsibilities for interacting with tribal nations. It provides direction to all departmental officials, staff, and contractors regarding fulfillment of trust obligations and other responsibilities arising from departmental actions which may potentially impact American Indian and Alaska Native traditional, cultural, and religious values and practices; natural resources; treaty and other federally recognized and reserved rights. DOE conducts government-to-government consultations with affected tribal nations to ensure that tribal rights, including concerns regarding cultural resources management, are considered in clean-up decisions, in accordance with DOE Order 144.1. DOE also coordinates and considers the views from other Native American communities.

Additionally, DOE has other mechanisms to ensure robust, informed stakeholder participation that includes frequent interactions with citizens advisory boards, intergovernmental groups, federal and state regulators, congressional staff, and others. These interactions promote transparency and public involvement. DOE sites also use communications tools that include, but are not limited to, townhall meetings, website calendars, on-line collaboration and informational meetings, reading rooms, and press releases.

The established process to apply the HLWI to a specific waste stream is exemplified by the successful model used for SRS DWPF recycle wastewater. This process provided opportunities for stakeholder involvement and feedback throughout the project. Multiple entities such as Energy Communities Alliance, SRS Community Reuse Organization, and the National Governors Association have provided DOE with positive feedback on its availability of public information and its willingness to discuss and explain the HLWI publicly. Although not required by CEQ and DOE NEPA regulations for EAs, the process included making the draft EA available for public comment, holding informational meetings and webinars on the draft and final EAs, preparing and making available fact sheets, and including a Comment Response Document in the final EA. The supporting technical documents, including sampling data and other information demonstrating that the proposed waste disposal meets the disposal facility waste acceptance criteria and performance objectives for protection of human health and the environment, have been made available to the public and included in public outreach briefings.

Signing Authority

This Department of Energy document was signed on December 15, 2021, by William I. White, Senior Advisor for Environmental Management, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the *Federal Register*, the undersigned DOE *Federal Register* Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed at Washington, DC on December 16, 2021.

Treena V. Garrett,
Federal Register Liaison Officer,
U.S. Department of Energy.

